Agenda for 3rd Annual Parabolic Trough Workshop

Monona Terrace Convention Center – Madison, Wisconsin
June 18, 2000

Meeting Objectives

- Provide opportunity for information exchange and discussion among participants.
- Provide an update for the solar research community, industry, and interested stakeholders on the many developments in parabolic trough solar power technology.
- Obtain feedback from participants on directions for future trough R&D efforts.

8:00 Introduction

- DOE/SunLab Trough Technology Program Overview — Hank Price: SunLab — 15

  DOE/SunLab has greatly expanded its parabolic trough technology R&D program. This presentation provides an overview of the DOE trough program and highlights a number of advances that have been made in trough technology over the last year by industry, SunLab, and other research institutions.

8:15 Session 1: Trough Technology

- Receiver Developments — Rod Mahoney: SunLab — 30

  The reliability and lifetime of the parabolic trough receiver has proven to be one of the key issues for current and future plants. This presentation will provide a review of the results from the MWE & Associates receiver tube failure analysis study, provide an update on the testing of an improved Solel receiver tube design, and describe the status of the SunLab efforts to develop selective coating with improved stability in air and low-cost receiver tube designs.

- EuroTrough Collector Development — Michael Geyer: DLR-PSA — 30

  The Luz System Three (LS-3) parabolic trough collector used at the last trough plants built has demonstrated lower performance than the earlier LS-2 design. A consortium of European companies has developed a new torque-box parabolic through collector design that builds off the experience of the LS-2 and LS-3 collectors. This presentation will provide a review of the new EuroTrough design and describe a proposal for testing the design one of the operating SEGS plants.

- Collector Technology Panel Discussion: — Bob Cable: KJCOC — 45

  A cross-section of the trough industry have been invited to provide an update on their collector technology development efforts. The panel will present a prioritized list of future development needs. A group discussion will follow with questions to the panel.

  Invited participants: Duke Solar, Industrial Solar Technology, Solel Solar Systems, and EuroTrough

10:00 Break — 15

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10:15 Session 2: Thermal Storage (1 hrs - Hale)

- Bechtel/Pilkington Thermal Storage Developments Bruce Kelly: Nexant 30

  This team has completed a review of thermal storage technologies and has performed detailed assessments of the molten-salt and concrete thermal storage for parabolic trough plants. Will provide and update on the most promising thermal storage options for near-term projects.

- SunLab Molten-Salt Test Jim Pacheco: SunLab 15

  Provide an overview of the thermal storage development and testing activities currently being conducted at SunLab.

- DOE Trough Thermal Storage Development Mary Jane Hale: SunLab 15

  Discussion of proposed directions for the SunLab thermal storage development effort.

11:15 Session 3: Plant and Process Design I (1 hr)

- ISCCS Analysis & TIPP Project Bruce Kelly: Nexant 30

  The Integrated Solar Combined Cycle System (ISCCS) integrates parabolic troughs with combined cycle power plant technology and is believed to be the lowest cost deployment approach for parabolic trough technology. An international collaboration study titled Trough Integration into Power Plants *(TIPP – Nexant/Pilkington/DLR/SunLab) have optimized the integration of troughs in an ISCCS plant.*

- Direct Steam Generation (DSG) Update (15 min) Michael Geyer: DLR/PSA 15

  Generating steam directly in the collector field offers one opportunity for reducing the cost of power from parabolic trough plants. This presentation provides an update on the DSG test currently being conducted at the Plataforma Solar de Almería in Spain. DSG eliminates the need for a separate heat transfer fluid system, reduces pumping parasitics, and reduces heat losses from the collector field. DSG adds challenges of higher pressures and flow control in the solar field.

12:00 Lunch Time (1 hr)

- GEF Projects Overview Richard Spencer: World Bank 20-30

  This talk provides an update on the four Global Environment Facility (GEF) $50 million grants for CSP projects in India, Egypt, Morocco, and Mexico.

1:00 Session 4: Modular Trough Systems (2 hrs)

Small modular trough plants in the 100s of kWe to 10s MWe represent a market niche that has not be seriously addressed for a number of years. Given the growing recognition of the added value of distributed generation and the increasing global need for small remote power systems, small modular trough systems could potentially compete with other conventional and renewable technologies today. This session is a panel discussion to evaluate the opportunities and issues for modular trough systems.

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-	Introduction and Concept description	Vahab Hassani, NREL	10
-	Feasibility of Using Kalina Cycles	Jacov Lehrner, Exergy, Inc.	10
-	Low Temperature Applications	Zvi Krieger, Ormat	10
-	Organic Rankine Cycles	Bill Batton, Barber-Nichols	10
-	Market Opportunities	John Brugman, Bibb & Assoc.	10
-	Solar Field Performance	Randy Gee, Duke Solar	10
-	Panel Discussion		60

3:00 Session 5: SunLab/DOE Trough Program Planning Session (2 hrs)

This session is open to all participants to collect feedback on activities and directions that the DOE trough program should pursue as it moves forward.

5:00 Adjourn